



SEQUENCE LISTING

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NeuroMed Technologies, Inc.

<120> NOVEL HUMAN CALCIUM CHANNELS AND RELATED  
PROBES, CELL LINES AND METHODS

<130> 38109-20007.00

<140> US 09/030,482  
<141> 1998-02-25

<150> US 60/039,204  
<151> 1997-02-28

<160> 33

<170> FastSEQ for Windows Version 4.0

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<210> 2  
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<210> 4  
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<400> 5  
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<210> 6  
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<212> DNA  
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<210> 12  
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<212> DNA  
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<211> 168  
<212> DNA  
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tacaacctca tctacttcat cctgcttATC ataccctct tgccttgac cccatatgg  
120  
cttcccAGAG tgagctcatc cacctcgta tgcctgactc gacgttca  
168

<210> 14  
<211> 98  
<212> DNA  
<213> Human

<220>  
<223> Expressed sequence tag H55617

<400> 14  
gatggTCgag tactccCTgg accttcagaa catcaacctg tcagccatcc gcaccgtgcg  
60  
cgtcctgagg cccctcaaag ccatcaacccg cgtgccca  
98

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<211> 94  
<212> DNA  
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<220>  
<223> Expressed sequence tag H55223

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catgctggTG atcctgctga actgcgtgac acttggcatg taccagccgt gcgacgacat  
60

ggactgcctg tccgaccgct gcaagatcct gcag  
94

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120  
agg  
123

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<221> misc\_feature  
<222> (1)...(343)  
<223> n = A,T,C or G

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ttctctccat ttaggaatg tttctggctg aactgataga aaagtatttt gtgtgcccta  
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ccctgttncg agtgatccgt cttgccagga ttggccgaat cctacgtctg atcaaaggag  
120  
caaaggggat ccgcacgctg ctcttgctt tgatgatgtc cttccctgcg ttgttaaca  
180  
tcggnctcct tctttcctg gtcatgttca tctacgnat cttgggatg tccaattttg  
240  
cctatgttaa gagggaaagtt gggatcgatg acatgttnan ctttgagacc tttggcaaca  
300  
gcatgatctg cctgttccaa attacaacct ctgctggctg gga  
343

<210> 18  
<211> 5562  
<212> DNA  
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<220>  
<221> CDS  
<222> (1)...(5562)  
<223> Human alpha-1 partial sequence from BAC bK206c7

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48  
Met Phe Phe Val Ser Ala Asn Pro Trp Val Ser Phe Thr Ser Phe Asp  
1 5 10 15

tta aac gtg gcc aat atg gac aac ttc ttc gcc ccc gtt ttc acc atg  
96  
Leu Asn Val Ala Asn Met Asp Asn Phe Phe Ala Pro Val Phe Thr Met  
20 25 30

ggc aaa tat tat acg caa ggc gac aag gtg ctg atg ccg ctg gcg att  
144  
Gly Lys Tyr Tyr Thr Gln Gly Asp Lys Val Leu Met Pro Leu Ala Ile  
35 40 45

cag gct ctg aaa cag ctg atg ttc aaa ttg gtg gcc act gtt gct cga  
192  
Gln Ala Leu Lys Gln Leu Met Phe Lys Leu Val Ala Thr Val Ala Arg  
50 55 60

aca cat gct aca ccg tca cac atc acg ggt ggt cct gga aca ggg atg  
240  
Thr His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met  
65 70 75 80

cac acg ggc acc ttc cag gaa gga gct gag cct ggt tca tct cag cac  
288  
His Thr Gly Thr Phe Gln Glu Gly Ala Glu Pro Gly Ser Ser Gln His  
85 90 95

cct gag gca cag gcc acg tat aca gca ggg tgc acc cca gcc ccc acg  
336  
Pro Glu Ala Gln Ala Thr Tyr Thr Ala Gly Cys Thr Pro Ala Pro Thr  
100 105 110

ggc gat ccc acc tgc tgc ttt gtc ctt gac ttg gtg tgc acg tgg ttt  
384  
Gly Asp Pro Thr Cys Cys Phe Val Leu Asp Leu Val Cys Thr Trp Phe  
115 120 125

gaa tgt gtc agc atg ctg gtg atc ctg ctg aac tgc gtg aca ctt ggc  
432  
Glu Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu Gly  
130 135 140

atg tac cag ccg tgc gac gac atg gac tgc ctg tcc gac cgc tgc aag  
480  
Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys Lys  
145 150 155 160

atc ctg cag gtc ttt gat gac ttc atc ttt atc ttc ttt gcc atg gag  
528  
Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met Glu  
165 170 175

atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag tgc tac  
576

Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr  
180 185 190

ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtc atg gca ggc  
624

Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly  
195 200 205

aac atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc  
672

Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu  
210 215 220

aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc  
720

Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu  
225 230 235 240

ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt  
768

Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe  
245 250 255

gtc ttc ttc atc ttt ggc atc ata ggt gtg cag ctc tgg gcg ggc ctg  
816

Val Phe Phe Ile Phe Gly Ile Ile Gly Val Gln Leu Trp Ala Gly Leu  
260 265 270

ctg cgt aac cgc tgc ttc ctg gag gag aac ttc acc ata caa ggg gat  
864

Leu Arg Asn Arg Cys Phe Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp  
275 280 285

gtg gcc ttg ccc cca tac tac cag ccg gag gag gat gat gag atg ccc  
912

Val Ala Leu Pro Pro Tyr Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro  
290 295 300

ttc atc tgc tcc ctg tcg ggc gac aat ggg ata atg ggc tgc cat gag  
960

Phe Ile Cys Ser Leu Ser Gly Asp Asn Gly Ile Met Gly Cys His Glu  
305 310 315 320

atc ccc ccg ctc aag gag cag ggc cgt gag tgc tgc ctg tcc aag gac  
1008

Ile Pro Pro Leu Lys Glu Gln Gly Arg Glu Cys Cys Leu Ser Lys Asp  
325 330 335

gac gtc tac gac ttt ggg gcg ggg cgc cag gac ctc aat gcc agc ggc  
1056

Asp Val Tyr Asp Phe Gly Ala Gly Arg Gln Asp Leu Asn Ala Ser Gly  
340 345 350

ctc tgt gtc aac tgg aac cgt tac tac aat gtg tgc cgc acg ggc agc  
1104

Leu Cys Val Asn Trp Asn Arg Tyr Tyr Asn Val Cys Arg Thr Gly Ser  
355 360 365

gcc aac ccc cac aag ggt gcc atc aac ttt gac aac atc ggt tat gct  
1152  
Ala Asn Pro His Lys Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala  
370 375 380

tgg att gtc atc ttc cag gtg atc act ctg gaa ggc tgg gtg gag atc  
1200  
Trp Ile Val Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Glu Ile  
385 390 395 400

atg tac tac gtg atg gat gct cac tcc ttc tac aac ttc atc tac ttc  
1248  
Met Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe  
405 410 415

atc ctg ctt atc ata agt gag ctc atc cac ctc gtc atg cct gac tgc  
1296  
Ile Leu Leu Ile Ile Ser Glu Leu Ile His Leu Val Met Pro Asp Cys  
420 425 430

agc ttc agc aca gca cag tcc cca aaa tgt caa ggt gat tca ctc cca  
1344  
Ser Phe Ser Thr Ala Gln Ser Pro Lys Cys Gln Gly Asp Ser Leu Pro  
435 440 445

gga gtc gct gct gaa tcc ctg ctg cga gac tct agc tcc tca gtc  
1392  
Gly Val Ala Ala Glu Ser Leu Leu Leu Arg Asp Ser Ser Ser Val  
450 455 460

atc act gat gag gct gca gcc atg gag aac ctc ctg gcg ggc acc tcc  
1440  
Ile Thr Asp Glu Ala Ala Met Glu Asn Leu Leu Ala Gly Thr Ser  
465 470 475 480

aag ggg gat gaa agc tat ctg ctc agg ctg gcc ggc agc caa gtt cac  
1488  
Lys Gly Asp Glu Ser Tyr Leu Leu Arg Leu Ala Gly Ser Gln Val His  
485 490 495

tcc cag gct cag caa atg ctg ggg agg ggg ctg ggc cct gaa agc ctg  
1536  
Ser Gln Ala Gln Gln Met Leu Gly Arg Gly Leu Gly Pro Glu Ser Leu  
500 505 510

gaa act gga gag gag ccc cac tcg tgg agc cct cggt gcc aca agg aga  
1584  
Glu Thr Gly Glu Glu Pro His Ser Trp Ser Pro Arg Ala Thr Arg Arg  
515 520 525

tgg gat ccc caa tgc caa cca ggg cag cct ctc ccc ctt cat ttc atg  
1632  
Trp Asp Pro Gln Cys Gln Pro Gly Gln Pro Leu Pro Leu His Phe Met  
530 535 540

caa gca cag gtg ggc tcc ttc atg atc aac ctg tgc ctc gtt gtc  
1680  
Gln Ala Gln Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val  
545 550 555 560

ata gcg acc cag ttc tcg gag acc aag caa cgg gag cac cgg ctg atg  
1728  
Ile Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu His Arg Leu Met  
565 570 575

ctg gag cag cgg cag cgc tac ctg tcc tcc agc acg gtg gcc agc tac  
1776  
Leu Glu Gln Arg Gln Arg Tyr Leu Ser Ser Thr Val Ala Ser Tyr  
580 585 590

gcc gag cct ggc gac tgc tac gag gag atc ttc cag tat gtc tgc cac  
1824  
Ala Glu Pro Gly Asp Cys Tyr Glu Glu Ile Phe Gln Tyr Val Cys His  
595 600 605

atc ctg cgc aag gcc aag cgc cgc gcc ctg ggc ctc tac cag gcc ctg  
1872  
Ile Leu Arg Lys Ala Lys Arg Arg Ala Leu Gly Leu Tyr Gln Ala Leu  
610 615 620

cag agc cgg cgc cag gcc ctg ggc ccg gag gcc ccc gcc aaa  
1920  
Gln Ser Arg Arg Gln Ala Leu Gly Pro Glu Ala Pro Ala Pro Ala Lys  
625 630 635 640

cct ggg ccc cac gcc aag gag ccc cgg cac tac cct ctc aca gtc tgg  
1968  
Pro Gly Pro His Ala Lys Glu Pro Arg His Tyr Pro Leu Thr Val Trp  
645 650 655

gaa tcg att ctt ggg agg caa gca gaa gaa tgc acg ctc aga gct gcc  
2016  
Glu Ser Ile Leu Gly Arg Gln Ala Glu Glu Cys Thr Leu Arg Ala Ala  
660 665 670

gcc cac ccg tcc tcg ggt gcc agc cat cca ggc gtg ggc tcg gag gag  
2064  
Ala His Pro Ser Ser Gly Ala Ser His Pro Gly Val Gly Ser Glu Glu  
675 680 685

gcc cca gag ctg tgc ccg caa cat agc ccc ctg gat gcg acg ccc cac  
2112  
Ala Pro Glu Leu Cys Pro Gln His Ser Pro Leu Asp Ala Thr Pro His  
690 695 700

acc ctg gtg cag ccc atc ccc gcc acg ctg gct tcc gat ccc gcc agc  
2160  
Thr Leu Val Gln Pro Ile Pro Ala Thr Leu Ala Ser Asp Pro Ala Ser  
705 710 715 720

tgc cct tgc tgc cag cat gag gac ggc cgg cgg ccc tcg ggc ctg ggc  
2208

Cys Pro Cys Cys Gln His Glu Asp Gly Arg Arg Pro Ser Gly Leu Gly  
725 730 735

agc acc gac tcg ggc cag gag ggc tcg ggc tcc ggg agc tcc gct ggt  
2256

Ser Thr Asp Ser Gly Gln Glu Gly Ser Gly Ser Gly Ser Ala Gly  
740 745 750

ggc gag gac gag gcg gat ggg gac ggg gcc cg<sup>g</sup> agc agc gag gac gga  
2304

Gly Glu Asp Glu Ala Asp Gly Asp Gly Ala Arg Ser Ser Glu Asp Gly  
755 760 765

gcc tcc tca gaa ctg ggg aag gag gag gag gag gag cag gcg gat  
2352

Ala Ser Ser Glu Leu Gly Lys Glu Glu Glu Glu Gln Ala Asp  
770 775 780

ggg gcg gtc tgg ctg tgc ggg gat gtg tgg cg<sup>g</sup> gag acg cga gcc aag  
2400

Gly Ala Val Trp Leu Cys Gly Asp Val Trp Arg Glu Thr Arg Ala Lys  
785 790 795 800

ctg cgc ggc atc gtg gac agc aag tac ttc aac cg<sup>g</sup> ggc atc atg atg  
2448

Leu Arg Gly Ile Val Asp Ser Lys Tyr Phe Asn Arg Gly Ile Met Met  
805 810 815

gcc atc ctg gtc aac acc gtc agc atg ggc atc gag cac cac gag cag  
2496

Ala Ile Leu Val Asn Thr Val Ser Met Gly Ile Glu His His Glu Gln  
820 825 830

gcc agt gca gcg cag ccg ggc cg<sup>g</sup> gcc tgc ggg aga gga caa aat cca  
2544

Ala Ser Ala Ala Gln Pro Gly Arg Ala Cys Gly Arg Gly Gln Asn Pro  
835 840 845

gac ctt tgc atg acc ctc aag gcc cct tgt ctc tgt cac aac gtc cct  
2592

Asp Leu Cys Met Thr Leu Lys Ala Pro Cys Leu Cys His Asn Val Pro  
850 855 860

tca cca ggc cag ggt gtc ctg tcc cat cca gtg act cca ccc cat aca  
2640

Ser Pro Gly Gln Gly Val Leu Ser His Pro Val Thr Pro Pro His Thr  
865 870 875 880

gcc cca tgg cgc atg gag aca gga aag cag gga cac gga tgt gaa gaa  
2688

Ala Pro Trp Arg Met Glu Thr Gly Lys Gln Gly His Gly Cys Glu Glu  
885 890 895

gga cca gga caa cga agc agt gac atg ttt gcc ctg gag atg atc ctg  
2736

Gly Pro Gly Gln Arg Ser Ser Asp Met Phe Ala Leu Glu Met Ile Leu  
900 905 910

aag ctg gct gca ttt ggg ctc ttc gac tac ctg cgt aac ccc tac aac  
2784  
Lys Leu Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr Asn  
915 920 925

atc ttc gac agc atc att gtc atc atc agc atc tgg gag atc gtg ggg  
2832  
Ile Phe Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val Gly  
930 935 940

cag gcg gac ggt ggg ctg tcg gtg ctg cg<sup>g</sup> acc ttc cgg ctg ctg cgc  
2880  
Gln Ala Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu Arg  
945 950 955 960

gtg ctg aaa ctg gtg cgc ttc atg cct gcc ctg cgg cgc cag ctc gtg  
2928  
Val Leu Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu Val  
965 970 975

gtg ctc atg aag acc atg gac aac gtg gcc acc ttc tgc atg ctg ctc  
2976  
Val Leu Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu Leu  
980 985 990

atg ctc ttc atc ttc atc agc atc ctt ggg atg cat att ttt ggc  
3024  
Met Leu Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe Gly  
995 1000 1005

tgc aag ttc agc ctc cgc acg gac act gga gac acg gtg ccc gac agg  
3072  
Cys Lys Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp Arg  
1010 1015 1020

aag aac ttc gac tcc ctg ctg tgg gcc atc gtc act gtg ttc cag atc  
3120  
Lys Asn Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln Ile  
1025 1030 1035 1040

ctc acc cag gag gac tgg aac gtc gtt ctc tac aat ggc atg gcc tcc  
3168  
Leu Thr Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala Ser  
1045 1050 1055

act tct ccc tgg gcc tcc ctc tac ttt gtc gcc ctc atg acc ttc ggc  
3216  
Thr Ser Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe Gly  
1060 1065 1070

aac tat gtg ctc ttc aac ctg ctg gtg gcc atc ctg gtg gag ggc ttc  
3264  
Asn Tyr Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly Phe  
1075 1080 1085

cag gcg gag gtg act gtg gtc ttg gca gag gaa gca ccc cca cag ggc  
3312  
Gln Ala Glu Val Thr Val Val Leu Ala Glu Glu Ala Pro Pro Gln Gly  
1090 1095 1100

ctg cga aag act ggg cga ggg aga ggt ggc ctg gat ggg gga ggg ctg  
3360  
Leu Arg Lys Thr Gly Arg Gly Arg Gly Leu Asp Gly Gly Leu  
1105 1110 1115 1120

caa ttc aaa ctt cta gca ggc aac cta tcc cta aag gag ggg gtt gct  
3408  
Gln Phe Lys Leu Leu Ala Gly Asn Leu Ser Leu Lys Glu Gly Val Ala  
1125 1130 1135

gat gag gtg ggt gac gcc aat cgc tcc tac tcg gac gag gac cag agc  
3456  
Asp Glu Val Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln Ser  
1140 1145 1150

tca tcc aac ata gaa gag ttt gat aag ctc cag gaa ggc ctg gac agc  
3504  
Ser Ser Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp Ser  
1155 1160 1165

agc gga gat ccc aag ctc tgc cca atc ccc atg acc ccc aat ggg cac  
3552  
Ser Gly Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly His  
1170 1175 1180

ctg gac ccc agt ctc cca ctg ggt ggg cac cta ggt cct gct ggg gct  
3600  
Leu Asp Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly Ala  
1185 1190 1195 1200

gcg gga cct gcc ccc cga ctc tca ctg cag ccg gac ccc atg ctg gtg  
3648  
Ala Gly Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu Val  
1205 1210 1215

gcc ctg ggc tcc cga aag agc agc gtc atg tct cta ggg agg atg agc  
3696  
Ala Leu Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met Ser  
1220 1225 1230

tat gac cag cgc tcc ctg gtg ggt ctt aga gcc aca gcg ggg gtg  
3744  
Tyr Asp Gln Arg Ser Leu Val Gly Gly Leu Arg Ala Thr Ala Gly Val  
1235 1240 1245

cag gct gcc ttt ggg cac ctg gtg ccc cag ccg tgg gtg tgc ctg tgg  
3792  
Gln Ala Ala Phe Gly His Leu Val Pro Gln Pro Trp Val Cys Leu Trp  
1250 1255 1260

ggc gct gac ccg aac ggg aac tcc ttc cag tcc agc tcc cgg agc tcc  
3840

Gly Ala Asp Pro Asn Gly Asn Ser Phe Gln Ser Ser Ser Arg Ser Ser  
1265 1270 1275 1280

tac tac ggg cca tgg ggc cgc agc gcg gcc tgg gcc agc cgt cgc tcc  
3888

Tyr Tyr Gly Pro Trp Gly Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser  
1285 1290 1295

agc tgg aac agc ctc aag cac aag ccg ccg tcg gcg gag cat gag tcc  
3936

Ser Trp Asn Ser Leu Lys His Lys Pro Pro Ser Ala Glu His Glu Ser  
1300 1305 1310

ctg ctc tct gcg gag cgc ggc ggc ggc gcc cggtgc gag gtt gcc  
3984

Leu Leu Ser Ala Glu Arg Gly Gly Ala Arg Val Cys Glu Val Ala  
1315 1320 1325

gcg gac gag ggg ccg ccg cgg gca ccc ctg cac acc cca cac gcc  
4032

Ala Asp Glu Gly Pro Pro Arg Ala Ala Pro Leu His Thr Pro His Ala  
1330 1335 1340

cac cac gtt cat cac ggg ccc cat ctg gcg cac cgc cac cgc cac  
4080

His His Val His His Gly Pro His Leu Ala His Arg His Arg His His  
1345 1350 1355 1360

cgc cgg acg ctg tcc ctc gac aac agg gac tcg gtg gac ctg gcc gag  
4128

Arg Arg Thr Leu Ser Leu Asp Asn Arg Asp Ser Val Asp Leu Ala Glu  
1365 1370 1375

ctg gtg ccc gcg gtg ggc gcc cac ccc cgg gcc gcc tgg agg gcg gca  
4176

Leu Val Pro Ala Val Gly Ala His Pro Arg Ala Ala Trp Arg Ala Ala  
1380 1385 1390

ggc ccg gcc ccc ggg cat gag gac tgc aat ggc agg atg ccc agc atc  
4224

Gly Pro Ala Pro Gly His Glu Asp Cys Asn Gly Arg Met Pro Ser Ile  
1395 1400 1405

gcc aaa gac gtc ttc acc aag atg ggc gac cgc ggg gat cgc ggg gag  
4272

Ala Lys Asp Val Phe Thr Lys Met Gly Asp Arg Gly Asp Arg Gly Glu  
1410 1415 1420

gat gag gag gaa atc gac tac gtg agt ggg ggc ggg gcc gaa ggg gac  
4320

Asp Glu Glu Glu Ile Asp Tyr Val Ser Gly Gly Ala Glu Gly Asp  
1425 1430 1435 1440

ctg acc ctg tgc ttc cgc gtc cgc aag atg atc gac gtc tat aag ccc  
4368

Leu Thr Leu Cys Phe Arg Val Arg Lys Met Ile Asp Val Tyr Lys Pro  
1445 1450 1455

gac tgg tgc gag gtc cgc gaa gac tgg tct gtc tac ctc ttc tct ccc  
4416 Asp Trp Cys Glu Val Arg Glu Asp Trp Ser Val Tyr Leu Phe Ser Pro  
1460 1465 1470

gag aac agg ctc agg gat ctg ggc tgg gta agc ctc gag tgc cag gga  
4464 Glu Asn Arg Leu Arg Asp Leu Gly Trp Val Ser Leu Glu Cys Gln Gly  
1475 1480 1485

aag gtg ggt gac ctc gtg gtg tat ggt cag agg agg cag cgc  
4512 Lys Val Gly Asp Leu Val Val Trp Val Tyr Gly Gln Arg Arg Gln Arg  
1490 1495 1500

cag acc att att gcc cac aaa ctc ttc gac tac gtc gtc ctg gcc ttc  
4560 Gln Thr Ile Ile Ala His Lys Leu Phe Asp Tyr Val Val Leu Ala Phe  
1505 1510 1515 1520

atc ttt ctc aac tgc atc acc atc gcc ctg gag cgg cct cag atc gag  
4608 Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Gln Ile Glu  
1525 1530 1535

gcc ggc agc acc gaa cgc atc ttt ctc acc gtg tcc aac tac atc ttc  
4656 Ala Gly Ser Thr Glu Arg Ile Phe Leu Thr Val Ser Asn Tyr Ile Phe  
1540 1545 1550

acg gcc atc ttc gtg ggc gag atg aca ttg aag gta gtc tcg ctg ggc  
4704 Thr Ala Ile Phe Val Gly Glu Met Thr Leu Lys Val Val Ser Leu Gly  
1555 1560 1565

ctg tac ttc ggc gag cag gcg tac cta cgc agc agc tgg aac gtg ctg  
4752 Leu Tyr Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu  
1570 1575 1580

gat ggc ttt ctt gtc ttc gtg tcc atc atc gac atc gtg gtg tcc ctg  
4800 Asp Gly Phe Leu Val Phe Val Ser Ile Ile Asp Ile Val Val Ser Leu  
1585 1590 1595 1600

gcc tca gcc ggg gga gcc aag atc ttg ggg gtc ctc cga gtc ttg cgg  
4848 Ala Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg  
1605 1610 1615

ctc ctg cgc acc cta cgc ccc ctg cgt gtc atc agc cgg gcg ccg ggc  
4896 Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly  
1620 1625 1630

ctg aag ctg gtg gag aca ctc atc tcc tcc ctc aag ccc atc ggc  
4944  
Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Lys Pro Ile Gly  
1635 1640 1645

aac atc gtg ctc atc tgc tgt gcc ttc ttc atc atc ttt ggc atc ctg  
4992  
Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu  
1650 1655 1660

gga gtg cag ctc ttc aag ggc aag ttc tac cac tgt ctg ggc gtg gac  
5040  
Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr His Cys Leu Gly Val Asp  
1665 1670 1675 1680

acc cgc aac atc acc aac cgc tcg gac tgc atg gcc gcc aac tac cgc  
5088  
Thr Arg Asn Ile Thr Asn Arg Ser Asp Cys Met Ala Ala Asn Tyr Arg  
1685 1690 1695

tgg gtc cat cac aaa tac aac ttc gac aac ctg ggc cag gct ctg atg  
5136  
Trp Val His His Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met  
1700 1705 1710

tcc ctc ttt gtc ctg gca tcc aag gat ggt tgg gtg aac atc atg tac  
5184  
Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp Val Asn Ile Met Tyr  
1715 1720 1725

aat gga ctg gat gct gtt gtg gac cag cag cct gtg acc aac cac  
5232  
Asn Gly Leu Asp Ala Val Ala Val Asp Gln Gln Pro Val Thr Asn His  
1730 1735 1740

aac ccc tgg atg ctg ctg tac ttc atc tcc ttc ctg ctc atc gtc agc  
5280  
Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser  
1745 1750 1755 1760

ttc ttt gtg ctc aac atg ttt gtg ggt gtc gtg gtg gag aac ttc cac  
5328  
Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His  
1765 1770 1775

aag tgc cgg cag cac cag gag gct gaa gag gca cgg cgg cgt gag gag  
5376  
Lys Cys Arg Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu  
1780 1785 1790

aag cgg ctg cgg cgc ctg gag aag aag cgc cgg aag gcc cag cgg ctg  
5424  
Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Gln Arg Leu  
1795 1800 1805

ccc tac tat gcc acc tat tgt cac acc cgg ctg ctc atc cac tcc atg  
5472

Pro Tyr Tyr Ala Thr Tyr Cys His Thr Arg Leu Leu Ile His Ser Met  
1810 1815 1820

tgc acc agc cac tac ctg gac atc ttc atc acc ttc atc atc tgc ctc  
5520

Cys Thr Ser His Tyr Leu Asp Ile Phe Ile Thr Phe Ile Ile Cys Leu  
1825 1830 1835 1840

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5562

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1845 1850

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<213> Human

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20 25 30

Lys Tyr Tyr Thr Gln Gly Asp Lys Val Leu Met Pro Leu Ala Ile Gln  
35 40 45

Ala Leu Lys Gln Leu Met Phe Lys Leu Val Ala Thr Val Ala Arg Thr  
50 55 60

His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met His  
65 70 75 80

Thr Gly Thr Phe Gln Glu Gly Ala Glu Pro Gly Ser Ser Gln His Pro  
85 90 95

Glu Ala Gln Ala Thr Tyr Thr Ala Gly Cys Thr Pro Ala Pro Thr Gly  
100 105 110

Asp Pro Thr Cys Cys Phe Val Leu Asp Leu Val Cys Thr Trp Phe Glu  
115 120 125

Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu Gly Met  
130 135 140

Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys Lys Ile  
145 150 155 160

Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met Glu Met  
165 170 175

Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr Leu  
180 185 190

Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly Asn  
195 200 205

Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Lys  
210 215 220

Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu  
225 230 235 240

Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val  
245 250 255

Phe Phe Ile Phe Gly Ile Ile Gly Val Gln Leu Trp Ala Gly Leu Leu  
260 265 270

Arg Asn Arg Cys Phe Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp Val  
275 280 285

Ala Leu Pro Pro Tyr Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro Phe

290	295	300
Ile Cys Ser Leu Ser Gly Asp Asn Gly Ile Met	Gly Cys His Glu Ile	
305	310	315
Pro Pro Leu Lys Glu Gln Gly Arg Glu Cys Cys	Leu Ser Lys Asp Asp	320
325	330	335
Val Tyr Asp Phe Gly Ala Gly Arg Gln Asp Leu Asn	Ala Ser Gly Leu	
340	345	350
Cys Val Asn Trp Asn Arg Tyr Tyr Asn Val Cys Arg	Thr Gly Ser Ala	
355	360	365
Asn Pro His Lys Gly Ala Ile Asn Phe Asp Asn	Ile Gly Tyr Ala Trp	
370	375	380
Ile Val Ile Phe Gln Val Ile Thr Leu Glu Gly	Trp Val Glu Ile Met	
385	390	395
Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe	Ile Tyr Phe Ile	400
405	410	415
Leu Leu Ile Ile Ser Glu Leu Ile His Leu Val Met	Pro Asp Cys Ser	
420	425	430
Phe Ser Thr Ala Gln Ser Pro Lys Cys Gln Gly Asp	Ser Leu Pro Gly	
435	440	445
Val Ala Ala Glu Ser Leu Leu Arg Asp Ser Ser	Ser Ser Val Ile	
450	455	460
Thr Asp Glu Ala Ala Ala Met Glu Asn Leu Leu Ala	Gly Thr Ser Lys	
465	470	475
Gly Asp Glu Ser Tyr Leu Leu Arg Leu Ala Gly Ser	Gln Val His Ser	
485	490	495
Gln Ala Gln Gln Met Leu Gly Arg Gly Leu Gly Pro	Glu Ser Leu Glu	
500	505	510
Thr Gly Glu Glu Pro His Ser Trp Ser Pro Arg Ala	Thr Arg Arg Trp	
515	520	525
Asp Pro Gln Cys Gln Pro Gly Gln Pro Leu Pro Leu	His Phe Met Gln	
530	535	540
Ala Gln Val Gly Ser Phe Phe Met Ile Asn Leu Cys	Leu Val Val Ile	
545	550	555
Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu His	Arg Leu Met Leu	
565	570	575
Glu Gln Arg Gln Arg Tyr Leu Ser Ser Thr Val Ala	Ser Tyr Ala	
580	585	590
Glu Pro Gly Asp Cys Tyr Glu Glu Ile Phe Gln Tyr	Val Cys His Ile	
595	600	605
Leu Arg Lys Ala Lys Arg Arg Ala Leu Gly Leu	Tyr Gln Ala Leu Gln	
610	615	620
Ser Arg Arg Gln Ala Leu Gly Pro Glu Ala Pro Ala	Lys Pro	
625	630	635
Gly Pro His Ala Lys Glu Pro Arg His Tyr Pro Leu	Thr Val Trp Glu	
645	650	655
Ser Ile Leu Gly Arg Gln Ala Glu Glu Cys Thr Leu	Arg Ala Ala Ala	
660	665	670
His Pro Ser Ser Gly Ala Ser His Pro Gly Val Gly	Ser Glu Glu Ala	
675	680	685
Pro Glu Leu Cys Pro Gln His Ser Pro Leu Asp Ala	Thr Pro His Thr	
690	695	700
Leu Val Gln Pro Ile Pro Ala Thr Leu Ala Ser Asp	Pro Ala Ser Cys	
705	710	715
Pro Cys Cys Gln His Glu Asp Gly Arg Arg Pro Ser	Gly Leu Gly Ser	
725	730	735
Thr Asp Ser Gly Gln Glu Gly Ser Gly Ser Ser Ala	Gly Gly	
740	745	750

Glu Asp Glu Ala Asp Gly Asp Gly Ala Arg Ser Ser Glu Asp Gly Ala  
 755 760 765  
 Ser Ser Glu Leu Gly Lys Glu Glu Glu Glu Gln Ala Asp Gly  
 770 775 780  
 Ala Val Trp Leu Cys Gly Asp Val Trp Arg Glu Thr Arg Ala Lys Leu  
 785 790 795 800  
 Arg Gly Ile Val Asp Ser Lys Tyr Phe Asn Arg Gly Ile Met Met Ala  
 805 810 815  
 Ile Leu Val Asn Thr Val Ser Met Gly Ile Glu His His Glu Gln Ala  
 820 825 830  
 Ser Ala Ala Gln Pro Gly Arg Ala Cys Gly Arg Gly Gln Asn Pro Asp  
 835 840 845  
 Leu Cys Met Thr Leu Lys Ala Pro Cys Leu Cys His Asn Val Pro Ser  
 850 855 860  
 Pro Gly Gln Gly Val Leu Ser His Pro Val Thr Pro Pro His Thr Ala  
 865 870 875 880  
 Pro Trp Arg Met Glu Thr Gly Lys Gln Gly His Gly Cys Glu Gly  
 885 890 895  
 Pro Gly Gln Arg Ser Ser Asp Met Phe Ala Leu Glu Met Ile Leu Lys  
 900 905 910  
 Leu Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr Asn Ile  
 915 920 925  
 Phe Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val Gly Gln  
 930 935 940  
 Ala Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val  
 945 950 955 960  
 Leu Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu Val Val  
 965 970 975  
 Leu Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu Leu Met  
 980 985 990  
 Leu Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe Gly Cys  
 995 1000 1005  
 Lys Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys  
 1010 1015 1020  
 Asn Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu  
 1025 1030 1035 1040  
 Thr Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr  
 1045 1050 1055  
 Ser Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe Gly Asn  
 1060 1065 1070  
 Tyr Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly Phe Gln  
 1075 1080 1085  
 Ala Glu Val Thr Val Val Leu Ala Glu Glu Ala Pro Pro Gln Gly Leu  
 1090 1095 1100  
 Arg Lys Thr Gly Arg Gly Arg Gly Leu Asp Gly Gly Gly Leu Gln  
 1105 1110 1115 1120  
 Phe Lys Leu Leu Ala Gly Asn Leu Ser Leu Lys Glu Gly Val Ala Asp  
 1125 1130 1135  
 Glu Val Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln Ser Ser  
 1140 1145 1150  
 Ser Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp Ser Ser  
 1155 1160 1165  
 Gly Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly His Leu  
 1170 1175 1180  
 Asp Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly Ala Ala  
 1185 1190 1195 1200  
 Gly Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu Val Ala

1205	1210	1215
Leu Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met Ser Tyr		
1220	1225	1230
Asp Gln Arg Ser Leu Val Gly Gly Leu Arg Ala Thr Ala Gly Val Gln		
1235	1240	1245
Ala Ala Phe Gly His Leu Val Pro Gln Pro Trp Val Cys Leu Trp Gly		
1250	1255	1260
Ala Asp Pro Asn Gly Asn Ser Phe Gln Ser Ser Ser Arg Ser Ser Tyr		
1265	1270	1275
Tyr Gly Pro Trp Gly Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser Ser		
1285	1290	1295
Trp Asn Ser Leu Lys His Lys Pro Pro Ser Ala Glu His Glu Ser Leu		
1300	1305	1310
Leu Ser Ala Glu Arg Gly Gly Ala Arg Val Cys Glu Val Ala Ala		
1315	1320	1325
Asp Glu Gly Pro Pro Arg Ala Ala Pro Leu His Thr Pro His Ala His		
1330	1335	1340
His Val His His Gly Pro His Leu Ala His Arg His Arg His His Arg		
1345	1350	1355
Arg Thr Leu Ser Leu Asp Asn Arg Asp Ser Val Asp Leu Ala Glu Leu		
1365	1370	1375
Val Pro Ala Val Gly Ala His Pro Arg Ala Ala Trp Arg Ala Ala Gly		
1380	1385	1390
Pro Ala Pro Gly His Glu Asp Cys Asn Gly Arg Met Pro Ser Ile Ala		
1395	1400	1405
Lys Asp Val Phe Thr Lys Met Gly Asp Arg Gly Asp Arg Gly Glu Asp		
1410	1415	1420
Glu Glu Glu Ile Asp Tyr Val Ser Gly Gly Ala Glu Gly Asp Leu		
1425	1430	1435
Thr Leu Cys Phe Arg Val Arg Lys Met Ile Asp Val Tyr Lys Pro Asp		
1445	1450	1455
Trp Cys Glu Val Arg Glu Asp Trp Ser Val Tyr Leu Phe Ser Pro Glu		
1460	1465	1470
Asn Arg Leu Arg Asp Leu Gly Trp Val Ser Leu Glu Cys Gln Gly Lys		
1475	1480	1485
Val Gly Asp Leu Val Val Trp Val Tyr Gly Gln Arg Arg Gln Arg Gln		
1490	1495	1500
Thr Ile Ile Ala His Lys Leu Phe Asp Tyr Val Val Leu Ala Phe Ile		
1505	1510	1515
Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Gln Ile Glu Ala		
1525	1530	1535
Gly Ser Thr Glu Arg Ile Phe Leu Thr Val Ser Asn Tyr Ile Phe Thr		
1540	1545	1550
Ala Ile Phe Val Gly Glu Met Thr Leu Lys Val Val Ser Leu Gly Leu		
1555	1560	1565
Tyr Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp		
1570	1575	1580
Gly Phe Leu Val Phe Val Ser Ile Ile Asp Ile Val Val Ser Leu Ala		
1585	1590	1595
Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg Leu		
1605	1610	1615
Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly Leu		
1620	1625	1630
Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Lys Pro Ile Gly Asn		
1635	1640	1645
Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu Gly		
1650	1655	1660

Val Gln Leu Phe Lys Gly Lys Phe Tyr His Cys Leu Gly Val Asp Thr  
 1665 1670 1675 1680  
 Arg Asn Ile Thr Asn Arg Ser Asp Cys Met Ala Ala Asn Tyr Arg Trp  
 1685 1690 1695  
 Val His His Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser  
 1700 1705 1710  
 Leu Phe Val Leu Ala Ser Lys Asp Gly Trp Val Asn Ile Met Tyr Asn  
 1715 1720 1725  
 Gly Leu Asp Ala Val Ala Val Asp Gln Gln Pro Val Thr Asn His Asn  
 1730 1735 1740  
 Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe  
 1745 1750 1755 1760  
 Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His Lys  
 1765 1770 1775  
 Cys Arg Gln His Gln Glu Ala Glu Ala Arg Arg Arg Glu Glu Lys  
 1780 1785 1790  
 Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Gln Arg Leu Pro  
 1795 1800 1805  
 Tyr Tyr Ala Thr Tyr Cys His Thr Arg Leu Leu Ile His Ser Met Cys  
 1810 1815 1820  
 Thr Ser His Tyr Leu Asp Ile Phe Ile Thr Phe Ile Ile Cys Leu Asn  
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 Val Val Thr Met Ser Leu Glu His Tyr Asn Gln Pro Thr  
 1845 1850

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<220>  
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 <223> Human alpha-1 partial sequence

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 1 5 10 15

aat gtc ctg ctg ctc tgc ttc ttt gtc ttc ttc acc ttt ggc atc ata  
 96  
 Asn Val Leu Leu Cys Phe Phe Val Phe Phe Thr Phe Gly Ile Ile  
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ggt gtg cag ctc tgg gcg ggc ctg ctg cgt aac cgc tgc ttc ctg gag  
 144  
 Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe Leu Glu  
 35 40 45

gag aac ttc acc ata caa ggg gat gtg gcc ttg ccc cca tac tac cag  
 192  
 Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr Tyr Gln  
 50 55 60

ccg gag gag gat gat gag atg ccc ttc atc tgc tcc ctg tcg ggc gac  
 240  
 Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser Gly Asp  
 65 70 75 80  
  
 aat ggg ata atg ggc tgc cat gag atc ccc ccc ctc aag gag cag ggc  
 288  
 Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu Gln Gly  
 85 90 95  
  
 cgt gag tgc tgc ctg tcc aag gac gac gtc tac gac ttt ggg gcg ggg  
 336  
 Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly Ala Gly  
 100 105 110  
  
 cgc cag gac ctc aat gcc agc ggc ctc tgt gtc aac tgg aac cgt tac  
 384  
 Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn Arg Tyr  
 115 120 125  
  
 tac aat gtg tgc cgc acg ggc agc gcc aac ccc cac aag ggt gcc atc  
 432  
 Tyr Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly Ala Ile  
 130 135 140  
  
 agc ttt gac aac atc ggt tat gct tgg att gtc atc ttc cag gtg atc  
 480  
 Ser Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln Val Ile  
 145 150 155 160  
  
 act ctg gaa ggc tgg gtg gcg atc atg tac tac gtg atg gat gct ctc  
 528  
 Thr Leu Glu Gly Trp Val Ala Ile Met Tyr Tyr Val Met Asp Ala Leu  
 165 170 175  
  
 tcc ttc tac aac ttc gtc tac ttc atc ctg ctt atc ata  
 567  
 Ser Phe Tyr Asn Phe Val Tyr Phe Ile Leu Leu Ile Ile  
 180 185  
  
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 Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe Leu Glu Glu  
 35 40 45  
 Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr Tyr Gln Pro  
 50 55 60  
 Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser Gly Asp Asn  
 65 70 75 80

Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu Gln Gly Arg  
85 90 95  
Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly Ala Gly Arg  
100 105 110  
Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn Arg Tyr Tyr  
115 120 125  
Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly Ala Ile Ser  
130 135 140  
Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln Val Ile Thr  
145 150 155 160  
Leu Glu Gly Trp Val Ala Ile Met Tyr Tyr Val Met Asp Ala Leu Ser  
165 170 175  
Phe Tyr Asn Phe Val Tyr Phe Ile Leu Leu Ile Ile  
180 185

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<213> Rat

<220>  
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1 5 10 15  
aac gtg ctc ctg ctc tgt ttc ttc gtc ttc atc ttc ggc atc att  
96  
Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly Ile Ile  
20 25 30  
ggc gtg cag ctc tgg gca ggc ctg cta cgg aac cgc tgc ttc ctg gaa  
144  
Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe Leu Glu  
35 40 45  
gaa aac ttc acc ata caa ggg gat gtg gcc ctg ccc cct tat tac caa  
192  
Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr Tyr Gln  
50 55 60  
cca gag gag gat gac gag atg ccc ttt atc tgc tcc ctg act ggg gac  
240  
Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Thr Gly Asp  
65 70 75 80  
aat ggc atc atg ggc tgc cac gag atc ccc cca ctg aag gag cag ggc  
288  
Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu Gln Gly  
85 90 95

cgg gaa tgc tgc ctg tcc aaa gat gat gtg tat gac ttc ggg gcg ggg

336

Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly Ala Gly  
100 105 110

cgc cag gac ctc aac gcc agc ggt ctg tgc gtc aac tgg aac cgc tac  
384

Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn Arg Tyr  
115 120 125

tac aac gtc tgc cgc acg ggc aac gcc aac cct cac aag ggc gcc atc  
432

Tyr Asn Val Cys Arg Thr Gly Asn Ala Asn Pro His Lys Gly Ala Ile  
130 135 140

aac ttt gac aac att ggc tat gcc tgg att gtg att ttc cag gtg atc  
480

Asn Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln Val Ile  
145 150 155 160

act ctg gaa ggc tgg gtg gag atc atg tac tat gtg atg gac gca cat  
528

Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp Ala His  
165 170 175

tct ttc tac aac ttc atc tac ttc atc ctg ctt atc ata  
567

Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile  
180 185

<210> 23

<211> 188

<212> PRT

<213> Rat

<400> 23

Arg Ile Leu Val Asn Leu Leu Asp Thr Leu Pro Met Leu Gly Asn  
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20 25 30

Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe Leu Glu Glu  
35 40 45

Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr Tyr Gln Pro  
50 55 60

Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Thr Gly Asp Asn  
65 70 75 80

Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu Gln Gly Arg  
85 90 95

Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly Ala Gly Arg  
100 105 110

Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn Arg Tyr Tyr  
115 120 125

Asn Val Cys Arg Thr Gly Asn Ala Asn Pro His Lys Gly Ala Ile Asn  
130 135 140

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln Val Ile Thr  
145 150 155 160

Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp Ala His Ser  
165 170 175  
Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile  
180 185

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Ala His Ser Phe Trp Asn Trp Ile Tyr Phe Val Leu Leu Ile Val  
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<210> 25  
<211> 31  
<212> PRT  
<213> C. elegans

<400> 25  
Val Ile Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp  
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Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile  
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<210> 26  
<211> 23  
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<213> Human

<400> 26  
Asn Ile Asn Leu Thr Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu  
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Arg Ala Val Asn Arg Ile Pro  
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<210> 27  
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<400> 27  
Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu  
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Lys Ala Ile Asn Arg Val Pro  
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<210> 28  
<211> 19  
<212> PRT  
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<400> 28  
Met Ala Val Ile Met Ile Asn Cys Val Thr Leu Gly Met Tyr Arg Pro  
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Cys Glu Asp

<210> 29  
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<213> C. elegans

<400> 29  
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Cys Asp Asp

<210> 30  
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<400> 30  
Leu Thr Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Val  
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Asn Arg Ile Pro Ser Met Arg  
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<210> 31  
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<212> PRT  
<213> C. elegans

<400> 31  
Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu  
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Ser Arg Phe Glu Gly Met Arg  
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<210> 32  
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<213> Human

<400> 32  
Pro Thr Ile Ile Arg Val Met Arg Val Leu Arg Ile Ala Arg Val Leu  
1 5 10 15  
Lys Leu Leu Lys Met Ala Lys Gly Ile Arg Ser Leu Leu Asp Thr Val  
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Gly Glu Ala Leu Pro Gln Val Gly Asn  
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<210> 33  
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<213> C. elegans

<220>  
<221> VARIANT  
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<223> Xaa = Any Amino Acid

<400> 33

Pro Thr Leu Xaa Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu  
1 5 10 15  
Arg Leu Ile Lys Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met  
20 25 30  
Met Ser Leu Pro Ala Leu Phe Asn  
35 40